

Chapter 5: Mitigation

This Chapter provides a summary of the proposed mitigation commitments associated with the Build Alternative, as identified throughout this EA.

5.1 Land Use

Coordination with local land managers has been an on-going process. Constraints were identified early in project scoping and measures that were able to avoid and minimize resources important to land managers have been incorporated throughout the development of the Build Alternative.

The primary mitigation for land use impacts is compensation for the purchase of property, as discussed in **Section 5.3**. Other measures related to concerns and issues associated with land management are included under their respective heading. Specifically, stormwater runoff is addressed in **Section 5.9**, access management is in **Section 5.4**, median treatments and trails are in **Section 5.3**, and aesthetics are in **Section 5.18**.

Additionally, utility companies and/or local entities who have expressed a desire to attach utilities to the new bridge are encouraged to enter into UDOT's permit process as soon as possible so that these needs can be considered in the design of the bridge.

5.2 Farmlands

No mitigation is proposed or required.

5.3 Community Resources

Property acquisition will be conducted in accordance with Title VI of the Civil Rights Act of 1964 and the Uniform Relocation Assistance and Real Property Acquisition Policies act of 1970 as amended (the Uniform Act). Relocation services and benefits will be administered through UDOT's Relocation Assistance Program.

UDOT will build upon successes of the Moab Main Street Project to minimize community impacts during construction. Coordination with local stakeholders has identified the following commitments that will be incorporated into the project:

- Landscaping and median treatments consistent with the North Corridor Gateway Plan will be considered during design (see **Section 5.18**).

- UDOT standards for traffic control management will be implemented to coordinate the efficiency and safety of construction activities throughout the duration of the project.
- Major construction activities would be halted on weekends during peak tourist season (i.e., March, April, and late October) and during major events (i.e., the Skinny Tire festival, the Canyonlands half marathon and five mile run, the Easter Jeep Safari, and the 24 Hours of Moab bike race).
- The city, residents, and travelers will be kept informed regarding construction activities.

Recreation activities on the Colorado River will not be restricted during peak boating season since work within the live channel is restricted during the summer months (see **Section 3.14.6**). Existing trails will remain open for use during peak tourist season. Site specific locations may require temporary closures at other times when construction activities make it unsafe for use by pedestrians and bicyclists. Proposed roadway shoulders and sidewalks, as well as restoration of disturbed trails, and the enhancement of the Courthouse Wash to Colorado River Bridge Trail will improve the safety of bicyclists and pedestrians along US-191 and also increase connectivity of non-motorized trails within the area.

5.4 Economics

Mitigation measures and commitments to offset adverse economic impacts include those identified in **Sections 5.3** and **5.18**, as well as the following additional commitments:

- There will be at least one lane in each direction open during construction of the Colorado River Bridge.
- Pedestrian access to businesses will remain open during construction.
- Access to businesses will be maintained throughout construction and most driveways will remain open.
- Where amenable to the property owner, consolidation of driveway accesses will be considered in the design phase.
- UDOT's business guide, Partners for the Road Ahead, will be made available to businesses at the public hearing to assist them in proactively planning for and successfully coping with construction (also available online at www.udot.utah.gov/business-guide).

5.5 Pedestrian and Bicyclist Considerations

Pedestrian and bicyclist considerations are addressed in **Section 5.3** and **5.20**.

5.6 Air Quality

BMP measures will be implemented, and the contractor will comply with the provisions of state laws governing the maintenance and operations of construction equipment and regulations governing fugitive dust. The emissions that are due to the construction operations for this project will be mitigated by implementation of the following BMP measures. Specific project level measures suggested during construction operations include:

- **Fugitive Dust Emission Control Plan:** During construction of the project, the contractor will maintain a fugitive dust control plan under the State or Utah Fugitive Emissions Program Rule R307-309-4, effective December 1, 2003. Strategies to control fugitive dust under R307-309-4 include wetting or watering, chemical stabilization, enclosing or covering operations, planting vegetative cover, providing synthetic cover, wind breaks, reducing vehicular traffic, reducing vehicular speed, cleaning haul trucks before leaving loading area, limiting pushing operations to wet seasons, paving or cleaning road ways, covering loads, conveyor systems, boots on drop points, reducing the height of drop areas, using dust collectors, reducing production, mulching, limiting the number and power of blasts, limiting blasts to non-windy days and wet seasons, hydro drilling, wetting materials before processing, using a cattle guard before entering a paved road, washing haul trucks before leaving the loading site, and/or terracing.
- **Other Emissions Controls:** The contractor will shut off construction equipment when not in direct use to reduce idling, adhere to burning restrictions, control local source plant operations (e.g., asphalt, cement, and crushing), and minimize hauling.

5.7 Noise

In accordance with UDOT's Traffic Noise Abatement Policy (UDOT 08A2-1; revised March 8, 2004), there are no practical (reasonable and/or feasible) noise abatement measures which will eliminate the traffic noise impact and noise walls are not proposed. **Appendix A** (specifically, Section 11 of the Noise Analysis) provides further detail regarding each specific noise abatement measure considered.

Generally, the control, timing, and phasing of construction noise will be governed by UDOT construction specifications. The project falls within a “noise sensitive zone” (the land enclosed within a 1,500 foot radius circle of any receptor) as defined by UDOT construction standard specification Section 01355 (Environmental Protection) Part 1.8 Noise and Vibration Control. This specification states that the contractor will be required to prohibit construction activity in a noise sensitive zone if the sound level within 10 feet of the nearest receptor exceeds 95 dBA in daytime (from 7 am to 9 pm) or 55 dBA in nighttime (from 9 pm to 7 am), as well as Sundays and state holidays.

For non-planned or non-permitted undeveloped land, it is suggested that commercial development be incorporated in a manner that will create a buffer zone between US-191 and sensitive areas. In an effort to help create a buffer zone for future planning purposes of undeveloped land, the worst-case 65 and 70 dBA contours were developed for the two sections of US-191 that are proposed to have different speeds. The approximated 65 dBA contour distance is 140 feet between 400 North and the Colorado River, and 270 feet north of the river. The respective 70 dBA contours are 60 feet and 130 feet. These distances are measured from the proposed roadway centerline, rounded to the nearest ten feet, varies slightly based on typicals. This is a straight-line estimate for planning purposes only and does not take into account for sound level variations as a result of numerous local sound wave changing dynamics such as building shielding, terrain, tree zones, and ground zone changes. It does, however, incorporate the effects of the additional noise reflective pavement proposed from the construction of center turning lanes, shoulders, and bike paths, as applicable.

5.8 Geology and Soils

The use of retaining walls and incorporating erosion control measures into the project will limit encroachment into rock outcrops and other potential geologic hazards.

5.9 Water Resources

Mitigation for impacts to water resources are addressed through several required permits and approvals. **Table 3.9-8** summarizes the permits and approvals that will be obtained prior to implementation of the project. Mitigation requirements and other conditions associated with these permits and approvals will be complied with.

The permitting process together with BMPs, as required under Section 402 of the CWA, provide a coordinated and comprehensive effort to mitigate for short-term (construction-related) and long-term impacts on receiving waters. An erosion control plan including the use of BMPs to control construction-related erosion and

sedimentation impacts will be developed and incorporated in the design plans. This plan will be reviewed by permitting agencies as part of the permitting requirements and included in the construction contract documents. During construction, the effectiveness of BMPs will be monitored. BMPs are “schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of waters of the United States” (40 CFR 122.2). BMPs include, but are not limited to, “treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage” (40 CFR 122.2). Specific BMPs for the proposed project are expected to include the following:

- **Staging Areas** – Where possible, materials and equipment will be staged away from river banks and located in areas that minimize impacts to existing vegetation. When necessary, precautions will be taken (i.e. BMPs).
- **Preservation of Existing Vegetation** – Existing vegetation will be protected by preventing disturbance beyond the specified limits of construction.
- **Clearing Limits** – The amount of bare soil exposed at one time shall be limited and the duration of bare soil exposure shall be minimized in accordance with the SWPPP and erosion control plan.
- **Stabilization of Construction Entrance and Roads** – Stabilized construction entrances will be used to prevent the tracking of mud and other construction debris on city and county roads.
- **Access** – Stream access points will be limited to those necessary for construction.
- **Dust Control** – Watering and/or compacting materials will be used as appropriate to minimize dust.
- **Spill Prevention and Control** – A SPCC plan will be prepared during final design. Fuel and other hazardous materials shall be stored and handled as far as possible from the waterway. Special consideration will be given to barges and cranes working in the river.
- **Waste Management** – Waste materials will be stockpiled away from the river bank, covered, and removed from construction areas promptly. Excess fill material shall not be placed in the waterway, wetlands, or floodplains. Contaminated soils will be handled and disposed of properly.

- Erosion Control Devices – Where applicable, erosion control devices (such as silt fence and fiber rolls) will be installed around exposed ground in active construction areas to reduce erosion from the site. The erosion control devices, in combination with other BMPs, will help prevent untreated runoff from exiting construction sites.
- In-line Water Quality Features – In-line water quality features (e.g., oil/sediment separators) will be installed, where appropriate, to reduce the level of contaminants prior to discharge.
- Dry Extended Detention Pond – Detention ponds will be used when necessary to detain runoff and allow for settling of sediment or other contaminants. **Table 3.9-7** provides conceptual information about drainage areas and the likely use of detention ponds. A routine maintenance schedule will minimize the build-up of sediment and other material, which could otherwise become an additional source of contaminants entering the groundwater.
- Cofferdams – Depending on construction method, coffer dams may be used to divert flow around instream construction activities.
- Slope Stability – Disturbed slopes will be stabilized and revegetated in accordance with UDOT's Standard Specifications for Topsoil and Seeding. Decorative rock, boulder scatter, and shrub plantings may also be used in some locations.
- Break Periods – Construction may be temporarily suspended in an area, if necessary, to reduce temporary loading.

5.10 Floodplains

Since Moab City participates in the FIRM and work will be required within the designated 100-year floodplain of the Colorado River, coordination with the local floodplain coordinator (i.e., Moab City, Grand County, and/or the Utah Floodplain Coordinator) during design is required. The local floodplain coordinator will review the hydraulic/hydrology calculations and verify that there is no increase in the water surface elevation and that no further coordination is required.

5.11 Wild and Scenic Rivers

No mitigation is proposed or required.

5.12 Wetlands

An alignment shift was incorporated into the Build Alternative to avoid impacts to Wetland 2. A Section 404 Permit will be obtained prior to discharging dredged or fill materials into waters of the United States, including wetlands. Mitigation requirements and other conditions outlined in the Section 404 Permit will be complied with. Because permanent impacts to wetlands are only 0.07 acres, creation of a wetland area is not expected to be economically feasible. Conceptually, wetland mitigation is expected to consist of clearing litter from wetland areas and enhancing wetlands temporarily impacted by equipment or other construction activities. Replanting this disturbed area along the Colorado River corridor that currently consists of monotypic stands of tamarisk with a native cottonwood and willow complex will increase habitat value and may encourage residency for migratory birds. Native willow and cottonwood cuttings will be used rather than containerized stock.

5.13 Vegetation and Wildlife

Mitigation for impacts to vegetation and wildlife will be addressed through the measures outlined in **Sections 5.9, 5.12, and 5.14**. Additionally, potential for conflict between vehicles and Desert big horn sheep will be minimized by erecting signs as part of the project to caution drivers that sheep frequent the area. Signing will also be used during construction to minimize potential accidents that could result from travelers stopping in the travel lane or pulling over to observe the sheep.

5.14 Threatened, Endangered, and Other Sensitive Species

Mitigation will comply with the conditions of the USFWS Final Biological Opinion dated October 10, 2006 (see **Appendix B**). The actions and protective measures contractors and crews must comply with, in compliance with the Biological Opinion, are summarized in **Section 3.14.6**. BMPs and other mitigation measures used for federally listed species will limit potential impacts to other sensitive species as well.

5.15 Invasive Species

UDOT's Special Provision Section 0294S: Invasive Weed Control identifies BMPs that will be used to prevent invasions of noxious weeds on disturbed sites along the right of way.

UDOT will specify on construction contract documents that seed mixes used for landscaping and/or erosion control must be free of noxious weeds and other invasive plant species.

In compliance with the Executive Order 13112, the Utah Noxious Weed Act, and subsequent guidance from FHWA, the landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

5.16 Paleontological, Archaeological, and Historic Resources

Table 3.16-3 identifies avoidance and other protection measures included in the Build Alternative. In those cases where avoidance is not possible, it is because safety for the traveling public would be unacceptably compromised, or moving the roadway would impact other or even a greater number of historic properties.

Mitigation will be conducted in accordance with the MOA. The draft MOA is included in **Appendix C**. The FHWA has invited the SHPO, UDOT, and consulting parties to participate in the development of the MOA that stipulates archeological data recovery of site 42GR3627, and ILS archival documentation of the Colorado River Bridge. In accordance with 36 CFR 800.5-6, FHWA will notify the ACHP of the finding of an adverse effect, and the ACHP will decide if they will participate in the execution of the MOA.

To ensure the contractor does not encroach into any site areas not specified for construction use, UDOT will include a special provision in the construction contract that explicitly identifies areas needing protection by roadway stationing and erecting temporary fencing as a barrier to unaffected site portions. Standard Specifications governing the contract require that damage incurred by the contractor be mitigated at contractor expense.

UDOT Standard CSI 01355 Environmental Protection Part 1.10 - Discovery of Historic, Archaeological, and Paleontological Resources applies to this project and stipulates instructions to the contractor for the protection of any archaeological, historical, or paleontological resource discovered in the course of construction. Should a discovery occur, UDOT will consult with the SHPO and relevant consulting parties toward developing and implementing an appropriate treatment plan prior to resuming construction.

5.17 Hazardous Materials or Waste

Specific mitigation plans will be developed and implemented to contain hazardous materials encountered during construction and to eliminate contamination after construction. If warranted, further mitigation will be developed following additional investigation of those sites. The UDOT Specification 08A2-3 includes provisions in the event that additional hazardous waste sites are discovered during construction. Should workers encounter contamination during construction in these or any other locations, they should clear the area and contact the DERR immediately. Other mitigation measures include the following:

- The contractor will be required to provide written notification to the DAQ at least ten working days before the demolition of any structure, including buildings with no asbestos. DAQ indicates that RACM, which include friable ACMs and previously non-friable ACMs that may become friable as a result of demolition activities, must be identified by a certified asbestos inspector and removed by a certified asbestos abatement contractor prior to demolition. If the amount of asbestos to be removed is greater than the NESHAP size, then notification and payment of the appropriate fee is due ten working days prior to the asbestos removal project. The NESHAP size is defined as 260 linear feet of asbestos from pipes, 160 square feet, or 35 cubic feet from other facility components. Written notification is due at least one working day before the less-than-NESHAP-size amount of RACM is disturbed on any renovation project. No fee is charged for less-than-NESHAP-size renovation projects.
- During demolition activities, the contractor will ensure that workers follow OSHA regulations regarding potential exposure to airborne lead and asbestos. In addition, representative samples of any construction waste derived from commercial structures should be tested by the TCLP to determine if the waste is hazardous. According to the EPA, construction debris derived from residential structures constructed prior to 1978 is exempt from lead characterization requirements. However, individual landfills often require lead characterization (TCLP analysis) prior to acceptance of construction debris derived from residential structures constructed prior to 1978. Pre-demolition coordination with the landfill responsible for accepting the demolition wastes derived from this project is recommended.
- The contractor will properly remove and dispose of asbestos and lead contaminated materials according to all federal, state, and local regulations.

The contractor will also be advised of the potential of encountering petroleum hydrocarbon contamination.

- The contractor will monitor and properly handle and dispose of petroleum or other contaminant-impacted soils during construction. At a minimum, the following sites require monitoring:
 - 1 - Moab UMTRA site, between the Colorado River Bridge and SR-279,
 - 5 - Moab Service Center, 500 West and Main Street,
 - 6 - Vacant Lot, 634 North Main Street,
 - 7 - Maverik #238, 435 North Main Street,
 - 8 - Tag-A-Long Expeditions, 452 North Main Street
 - 9 - Maverick #337, 397 North Main Street,
 - 35 - Black Oil Distributing, 995 North Main Street.
- Should full property acquisition or the disposal of surplus property from the following sites be necessary, the UDOT Environmental Division will be consulted to determine the extent of further investigation applicable to each site. When permission to conduct this investigation can be obtained from the existing property owner, UDOT should conduct this investigation prior to acquisition of the property:
 - 1 - Moab UMTRA site, between the Colorado River Bridge and SR-279,
 - 5 - Moab Service Center, 500 West and Main Street,
 - 6 - Vacant Lot, 634 North Main Street,
 - 7 - Maverik #238, 435 North Main Street,
 - 8 - Tag-A-Long Expeditions, 452 North Main Street,
 - 9 - Maverik #337, 397 North Main Street
 - 35 - Black Oil Distributing, 955 North Main Street,
 - 37 - Holiday Inn Express, 1500 North Highway 191,
 - 38 - Ferrell North America Moab, 1431 North Highway 191,
 - 39 - Anasazi Realty, 755 North Main Street,
 - 40 - Century 21, 505 N Main Street, and
 - 41 - Moab Realty, 550 N Main Street.

5.18 Visual Quality

UDOT's CSS principles have been examined and measures that have been incorporated into the Build Alternative to reduce visual impact include:

- Match the existing alignment and vertical grade as much as possible,
- Incorporate retaining walls to minimize cut sections,
- Use the bikepath on the east side south of the Colorado River Bridge for non-motorized uses (instead of having both a sidewalk and bikepath along the east side), and
- Provide consistency with roadway design elements at both project termini.

Aesthetic treatments and visual enhancements of design features will be finalized during design through an aesthetic committee consisting of participants from Moab City, Grand County and/or the Trail Mix Committee for Non-Motorized Trails. The design will consider the cost and practicality associated with architectural treatments (e.g., form liners, concrete staining, decorative lighting, decorative rock, boulder scatter, shrub plantings, and/or other native landscaping) of design features such as retaining walls, structures, lighting, cut/fill slopes, and medians. Betterments may require local funding partners.

5.19 Cumulative Effects

On-going coordination with Grand County and Moab City, as well as other public land managers and regulatory agencies, will occur during design and construction to help ensure that the project design and construction schedule is coordinated with the implementation of future actions.

5.20 Section 4(f)

The following outlines mitigation associated with Section 4(f) resources that are not already addressed in mitigation outlined in **Sections 5.3 and 5.16**.

North of the US-191 Colorado River Bridge, construction will avoid nearby rock slopes and protect other resources important to Arches National Park. The design of the widened Courthouse Wash Bridge will continue to accommodate an informal foot trail to the nearby rock art panel.

The limited parking that is disturbed at Lions Park by construction activities will be restored once construction is complete. The proposed fill slope associated with Lions

Park was not steepened and a retaining wall was not recommended to avoid encroachment into the park because the ability to landscape slopes is a desirable goal of the park. The project design features will be coordinated with Grand County.

The Colorado River Bridge Underpass Trail will be fully reconstructed with similar design features as currently exists.

Just south of the US-191 Colorado River Bridge, the project design incorporates the use of a 2:1 slope and retaining wall to avoid fill within the preserve. Runoff will be treated using an in-line oil/sediment separator prior to discharge into a depressed area within the preserve at this location. Runoff will also be discharged to the preserve just south of the Moab Valley RV Resort, physical construction at this location will be avoided. Opportunities for additional water to be discharged to desirable locations within the preserve may be possible during design. Changes will be in accordance with the ecological and programmatic goals outlined in the Site Conservation Plan (Division of Wildlife Resources, 1994) and coordinated with the Division of Wildlife Resources and TNC.

Once construction is complete, disturbed areas will be revegetated.